NM2B AND NM3 NETWORK HARDWARE UPGRADE WITH ADJUSTABLE DISPLAY ARM AND DATAGRIP

INSTALLATION PROCEDURE

CAUTION: Use proper ESD control during all removal and installation procedures.

1. Turn the System Power switch to STANDBY and remove AC power from the machine.

2. Disable all circuit breakers by pulling out each button with a knife or sharp object.

3. Unplug the ORDM AC power cord from the AC convenience receptacle at the rear of the machine.

    Refer to Figure 1 for Steps 4 thru 6

4. Unplug the AC power cord from the rear of the ORDM CPU assembly.

5. Disconnect the Vitalink data cable, keyboard cable and printer cable (if applicable) from their ports on the rear panel of the CPU.

CAUTION: Do not plug or unplug the remote display cable with power applied.

6. Disconnect the remote display cable from its port on the rear panel of the CPU.

7. Remove the CPU retainer screw and lock washer from the underside of the CPU housing as shown in Figure 2.

8. Remove the CPU assembly from the housing by gently sliding it out from the rear.
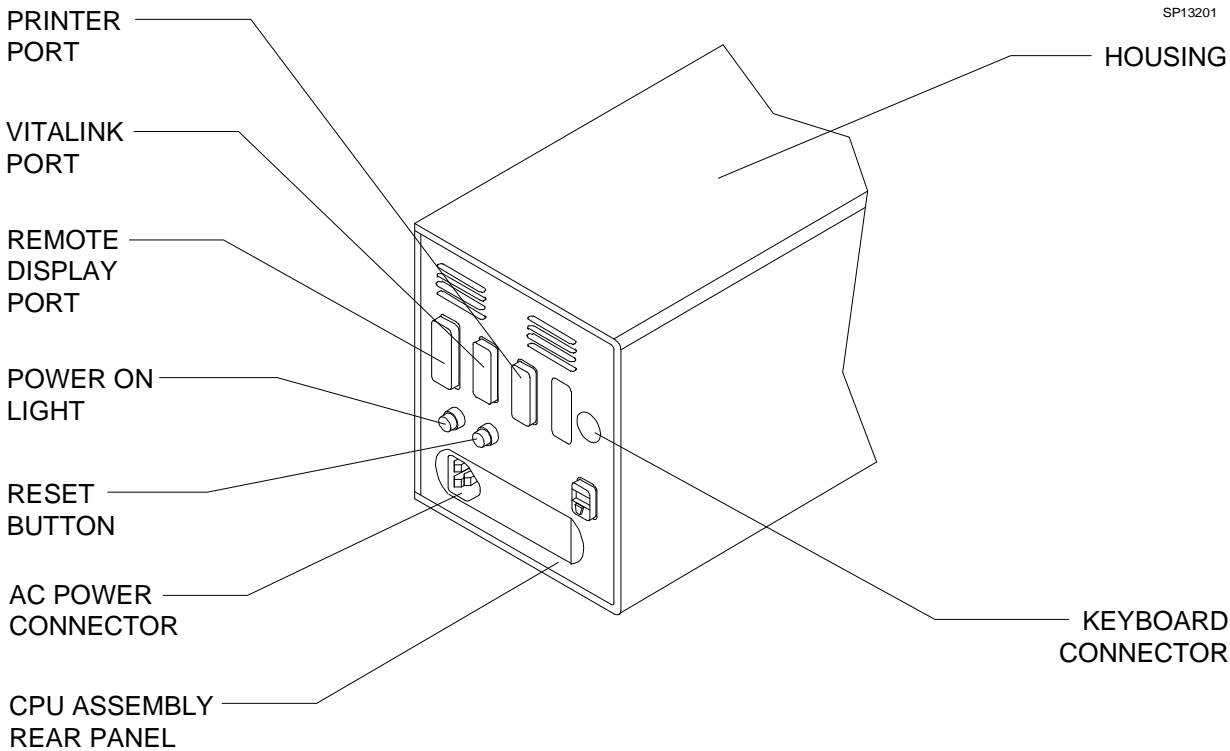
INSTALLATION PROCEDURE (continued)

SP13201

PRINTER PORT

VITALINK PORT

REMOTE DISPLAY PORT

POWER ON LIGHT

RESET BUTTON

AC POWER CONNECTOR

CPU ASSEMBLY REAR PANEL

HOUSING

KEYBOARD CONNECTOR

Figure 1: 286 CPU REAR PANEL CONNECTIONS

CPU ASSEMBLY

CPU HOUSING (BOOM ARM MOUNT NOT SHOWN)

LOCK WASHER

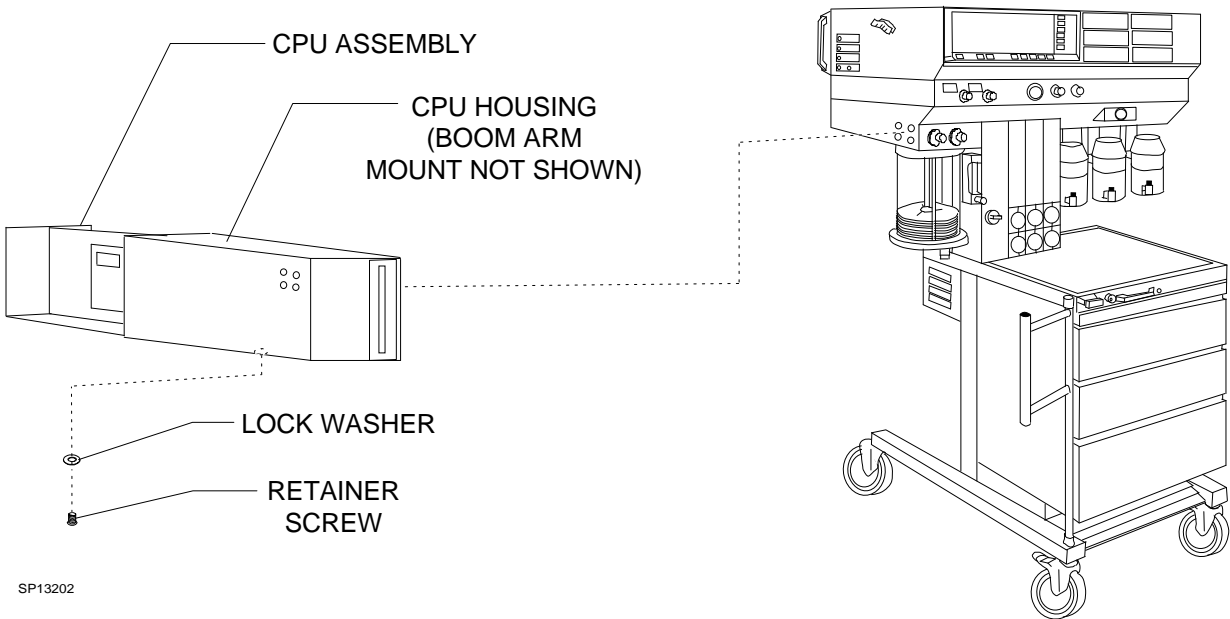RETAINER SCREW

SP13202

Figure 2: ORDM CPU HOUSING

2

INSTALLATION PROCEDURE (continued)

9.   If the machine is equipped with a manual sphygmomanometer, disconnect the gauge line from the interface panel. Unscrew the threaded mounting ring from the gauge mount and set the gauge aside.

10.   Loosen the clamp screw in the boom arm mounting block, and remove the patient cable (upper) boom arm. See Figure 3.
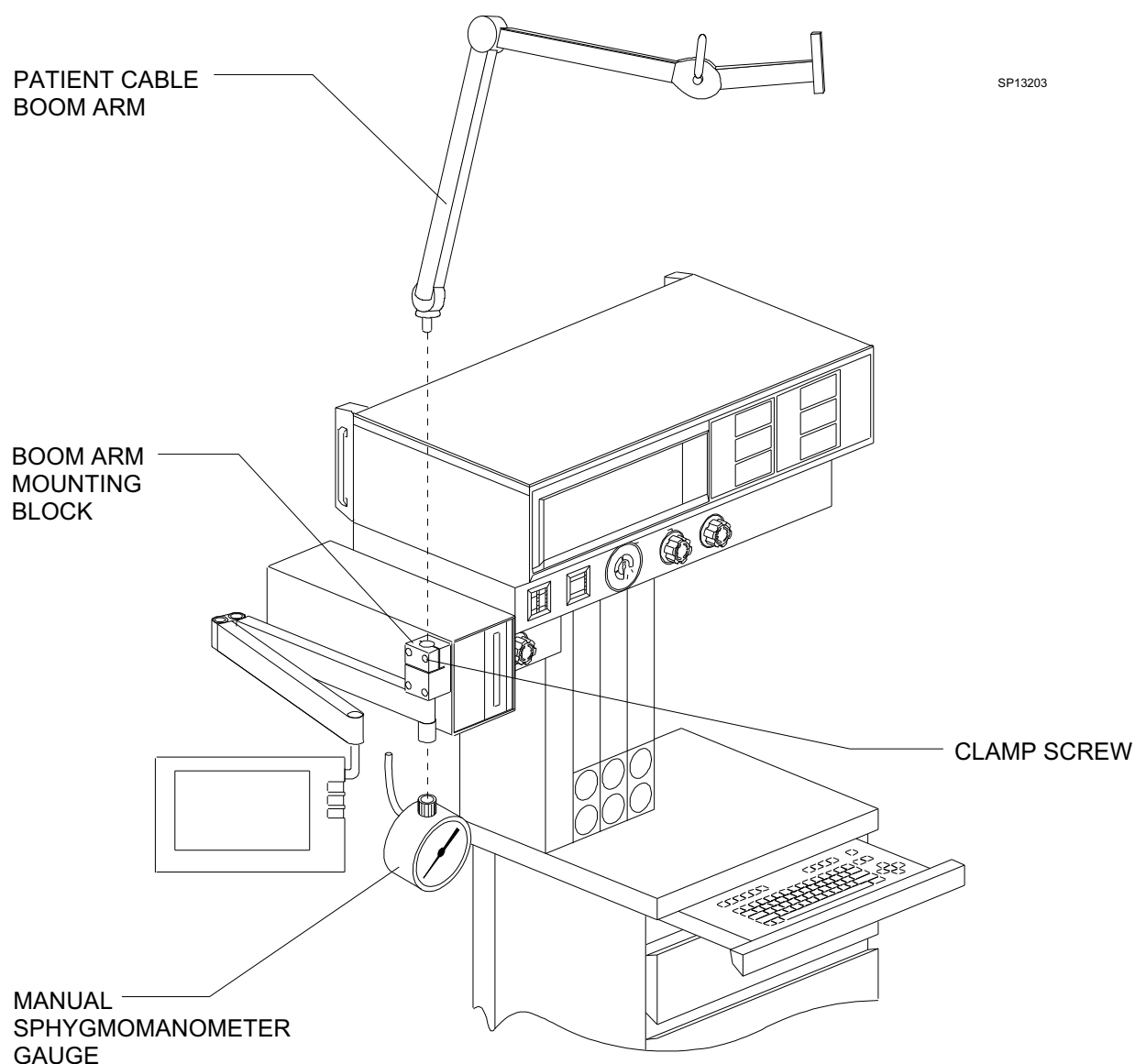
PATIENT CABLE BOOM ARM

SP13203

BOOM ARM MOUNTING BLOCK

CLAMP SCREW

MANUAL SPHYGMOMANOMETER GAUGE

Figure 3: SPHYGMOMANOMETER GAUGE AND UPPER BOOM ARM REMOVAL

3

INSTALLATION PROCEDURE (continued)

11. Remove the screws securing the cable clamps to the underside of the boom arm. Remove the remote display cable from the clamps.

12. Remove the plastic cap at the end of the boom arm to expose the remote display mounting screw. See Figure 4.

13. While holding the remote display assembly, loosen the mounting screw until the assembly separates from the boom arm. The display should now be completely separated from the boom arm.

14. Remove the boom arm assembly from the ORDM CPU housing by removing the three boom arm mounting block screws.
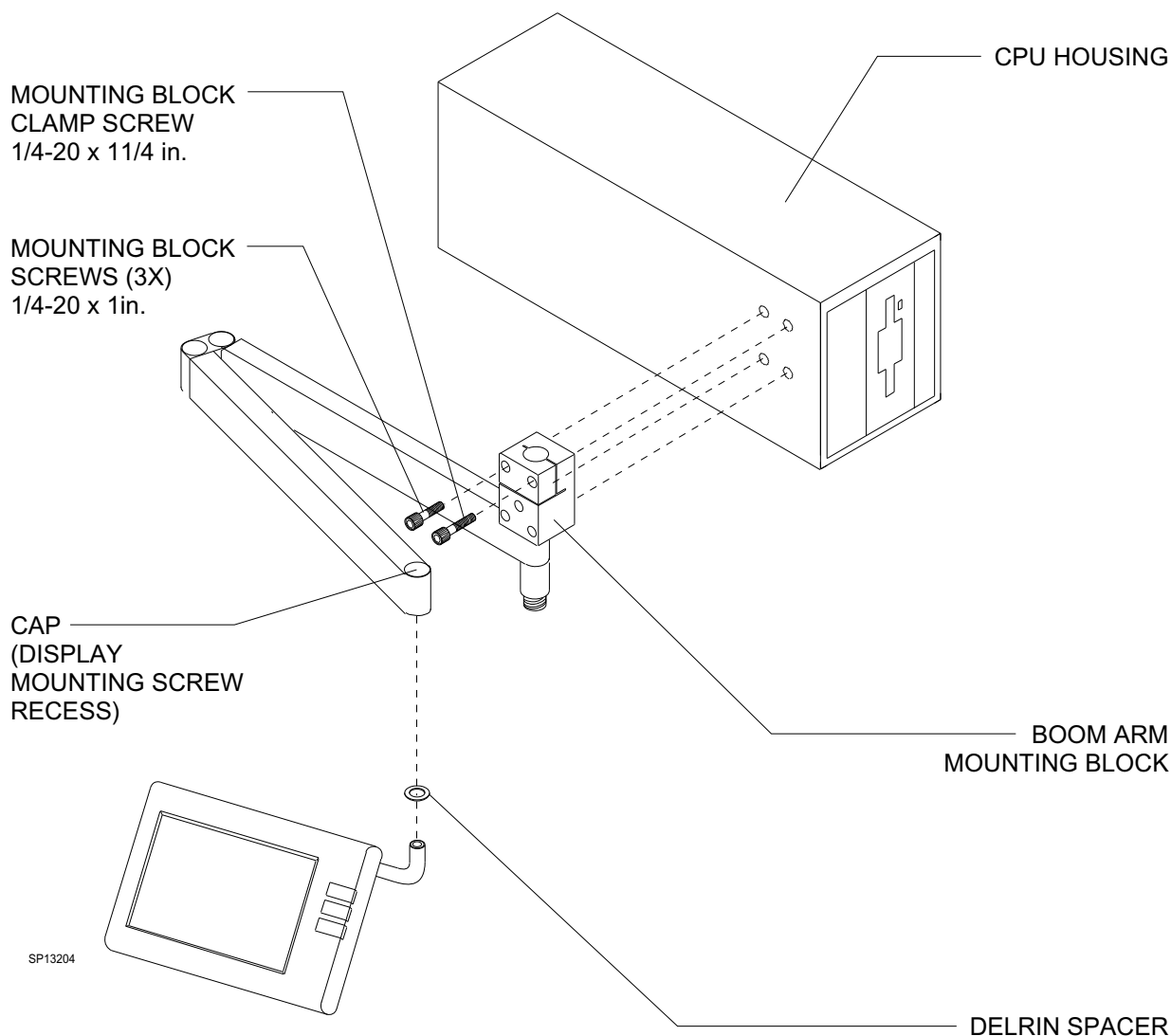
MOUNTING BLOCK
CLAMP SCREW
1/4-20 x 11/4 in.

MOUNTING BLOCK
SCREWS (3X)
1/4-20 x 1in.

CAP
(DISPLAY
MOUNTING SCREW
RECESS)

CPU HOUSING

BOOM ARM
MOUNTING BLOCK

DELRIN SPACER

SP13204

Figure 4: DISPLAY AND EXISTING BOOM ARM REMOVAL

4

INSTALLATION PROCEDURE (continued)

15. If the installation includes an optional patient line boom arm, remove the existing CPU housing from the machine and install the new CPU housing (P/N 4112875).

16. Carefully slide the new 386 CPU assembly (P/N 4112432) into the housing and ensure that the disk drive is correctly aligned with the front panel opening.

17. Reinstall the retainer screw and lock washer that was removed in Step 7.

18. Apply the disk insertion label (P/N 4112339) to the front of the CPU housing, positioned and oriented as shown in Figure 5. Ensure that the sticker area is clean, dry and free of cleaning solution residue.

19. Apply the CAUTION/SALE label (P/N 4104294) to the side of the CPU housing as shown in Figure 5. Ensure that the sticker area is clean, dry and free of cleaning solution residue.
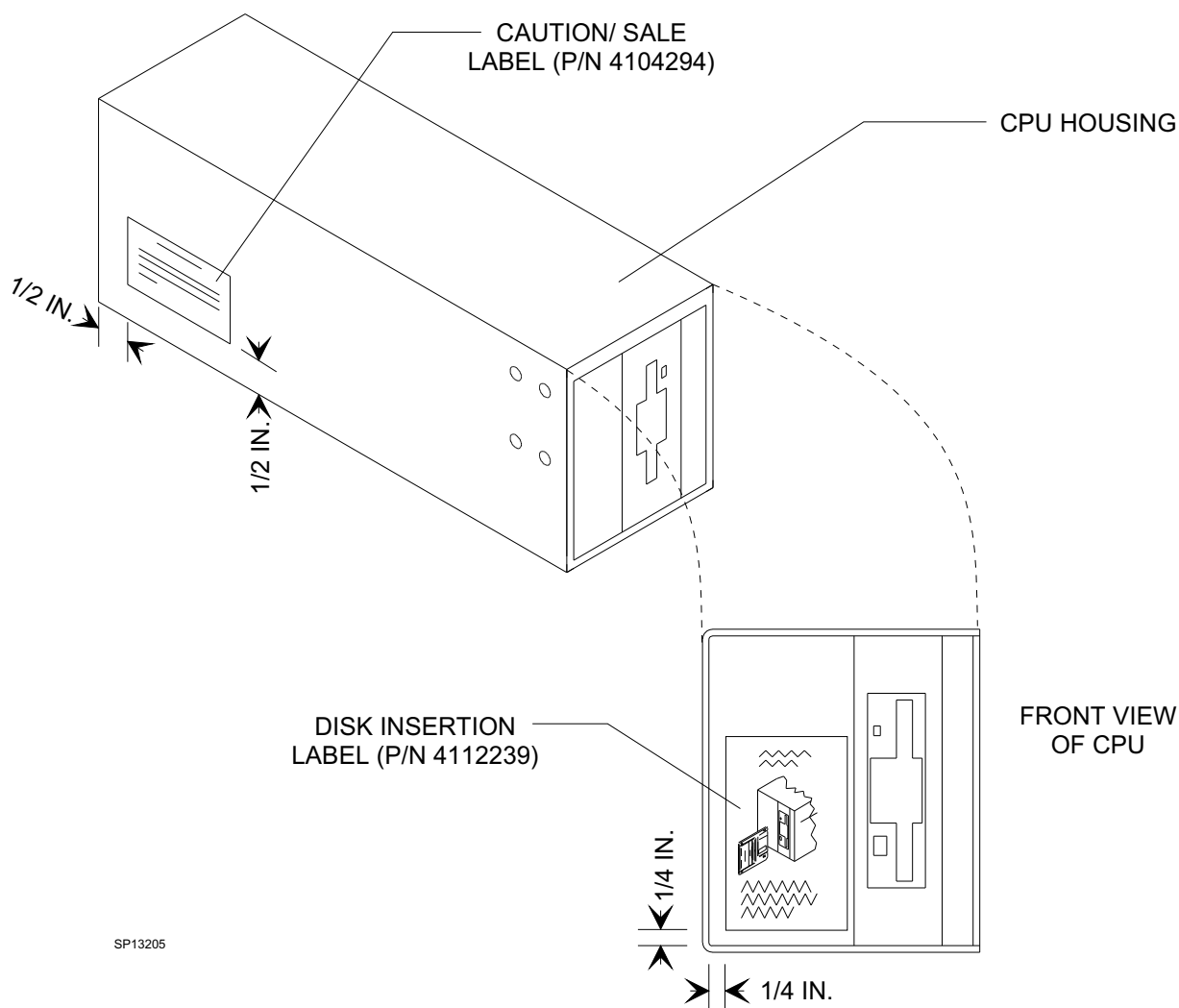

Figure 5: PLACEMENT OF LABELS

INSTALLATION PROCEDURE (continued)

NOTE: Steps 21 thru 25 are performed using the hardware provided in the packet supplied with the adjustable remote arm. Refer to Figure 6 for these steps.

19A. If the joint assembly is not pre-assembled to the display arm, insert the joint assembly into the arm and secure it with three 10-32 x ⅜ in. button head socket screws (P/N HW09005). See assembly detail in Figure 6.

20. Install the patient IV line plastic looms using a 6-32 x ⅜ in. button head socket screw (P/N HW09000) to secure each loom. Apply a small amount of Loctite #222 (purple) to the threads of each screw before installation. (An additional mounting screw will be installed through the bottom of each loom when the Datagrip and display cables are installed.)

If the patient IV line wire loom block was pre-assembled to the arm, skip to Step 26.

21. If not already assembled, install a 10-32 x 1 in. socket head cap screw (wire loom tension adjustment screw) and 10-32 hex nut in the wire loom block. Do not tighten the screw.
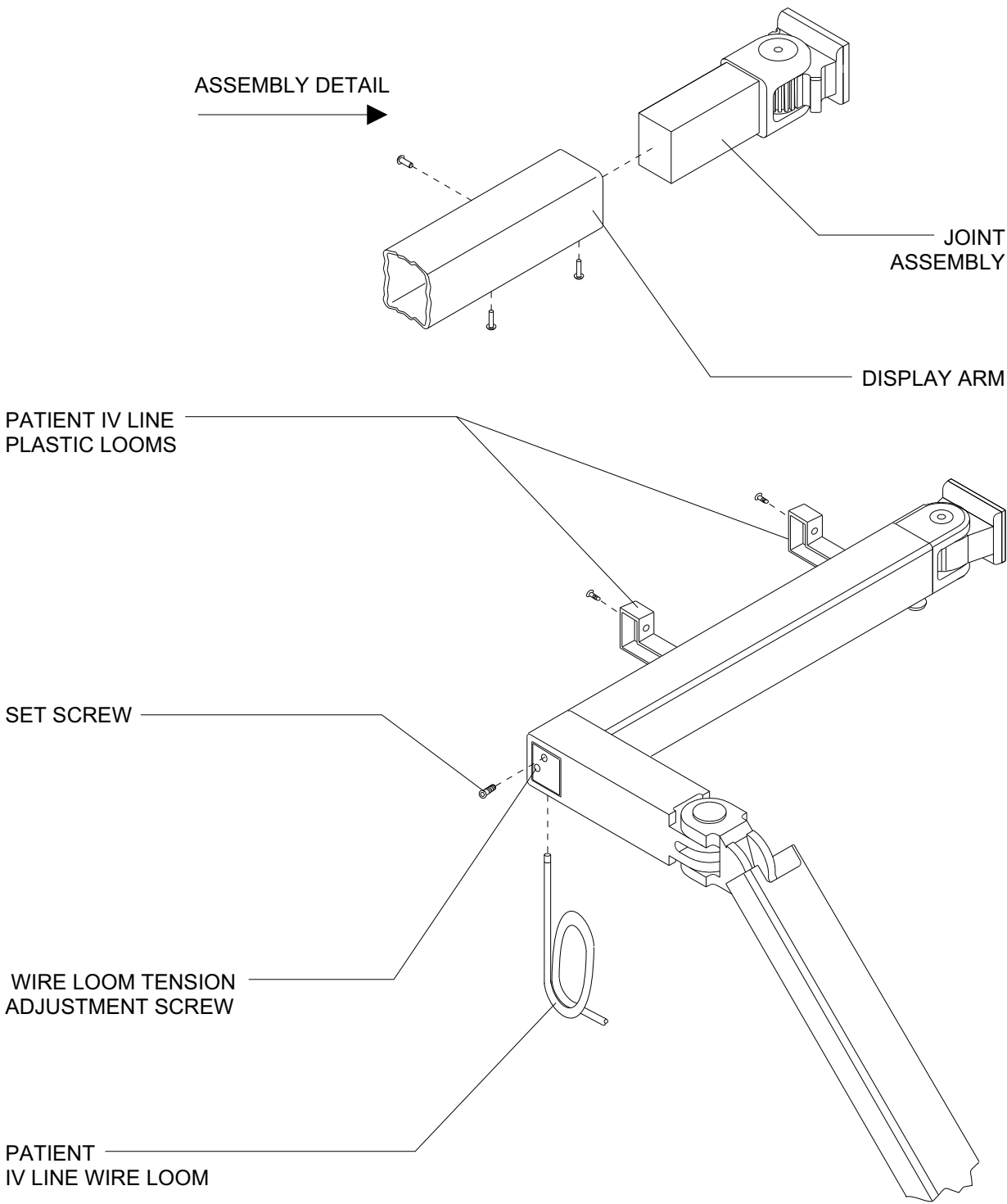
Place the ¼ in. flat washer in the recess in the wire loom block.

22. Insert the block into the arm and secure it with two 6-32 x ⅜ in. button head socket screws through the bottom of the arm. Apply a small amount of Loctite #222 (purple) to the threads of each screw before installation.

23. Insert the patient IV line wire loom up into the display arm elbow. Turn the wire loom as needed to align its tapped hole with the access hole in the end of the block.

24. Apply a small amount of Loctite #222 (purple) to the threads of a 6-32 x ½ in. flat point set screw, and thread the screw into the hole in the wire loom until the loom can be rotated 360° on its axis.

25. Tighten the wire loom tension adjustment screw until the wire loom has the desired tension.

6

INSTALLATION PROCEDURE (continued)

ASSEMBLY DETAIL

JOINT
ASSEMBLY

DISPLAY ARM

PATIENT IV LINE
PLASTIC LOOMS

SET SCREW

WIRE LOOM TENSION
ADJUSTMENT SCREW

PATIENT
IV LINE WIRE LOOM

SP13206

Figure 6: ASSEMBLING THE DISPLAY ARM HARDWARE

7

INSTALLATION PROCEDURE (continued)

NOTE: Follow Step 26A if the installation is receiving an optional patient line boom arm.

26.   If the display arm was not pre-assembled to the boom arm block, attach the display arm to the block with two ⅜-24 x 1½ in. socket head cap screws (P/N HW01101). See Figure 7.

27.   Position the display arm and block assembly at the left side of the CPU housing and attach the block to the housing with three ¼-20 x 1⅛ in. socket head cap screws (P/N HW01038).

If the machine is equipped with a manual sphygmomanometer, attach the gauge mount to the lower front corner of the CPU housing with a ¼-20 x 1⅜ in. button head socket screw.

SP13207

CPU ASSEMBLY

CPU HOUSING

BOOM ARM BLOCK MOUNTING SCREWS (3X)

THREADED HOLE FOR CABLE CLAMP SCREW

CPU RETAINER SCREW AND LOCKWASHER

DISPLAY ARM MOUNTING SCREWS (2X)
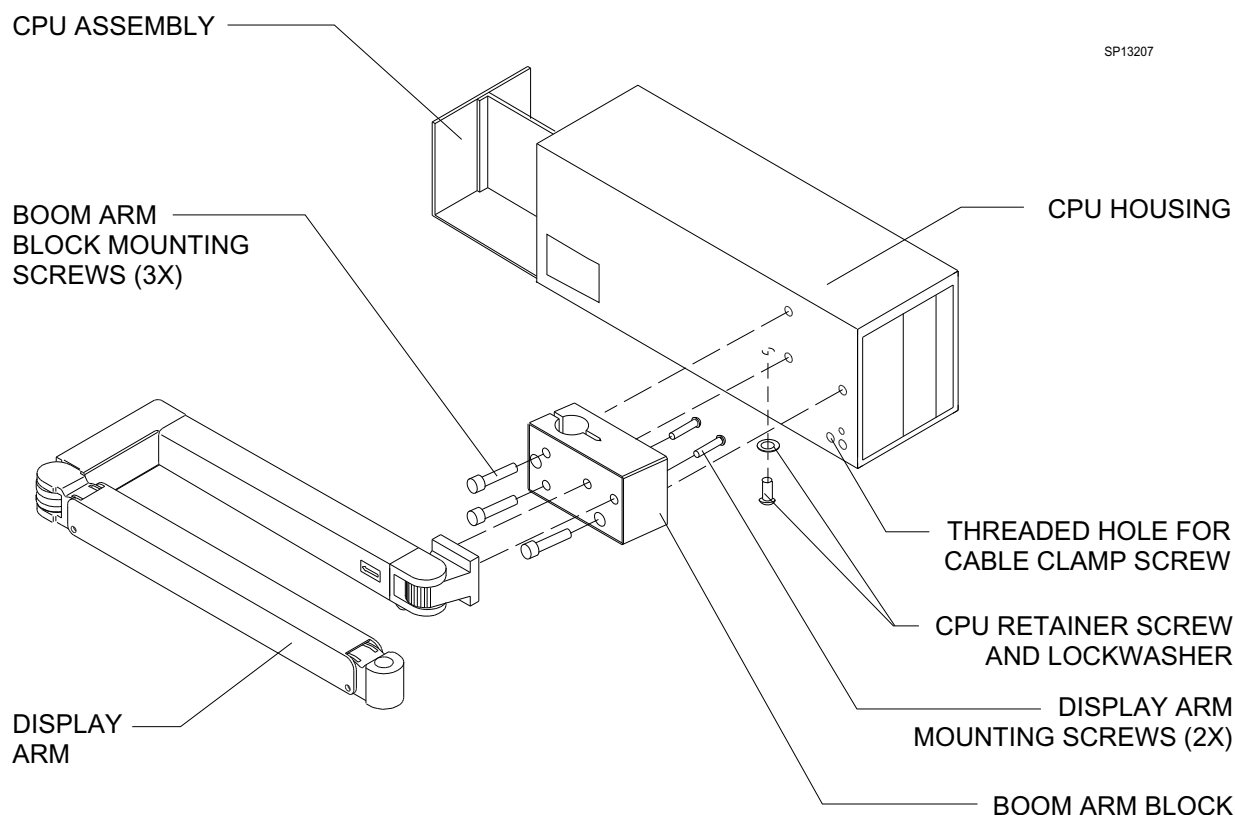
DISPLAY ARM

BOOM ARM BLOCK

Figure 7: DISPLAY ARM INSTALLATION ON OUTBOARD ORDM

8

INSTALLATION PROCEDURE (continued)

26A. If the display arm was not pre-assembled to the boom arm block, attach the display arm to the block with two $\frac{3}{8}$-24 x 1½ in. socket head cap screws. See Figure 7A.

27A Position the display arm and block assembly at the left side of the CPU housing and attach the block to the housing with three ¼-20 x 1⅛ in. socket head cap screws.

If the machine is equipped with a manual sphygmomanometer, attach the gauge mount to the lower front corner of the CPU housing with a ¼-20 x 1⅜ in. button head socket screw.
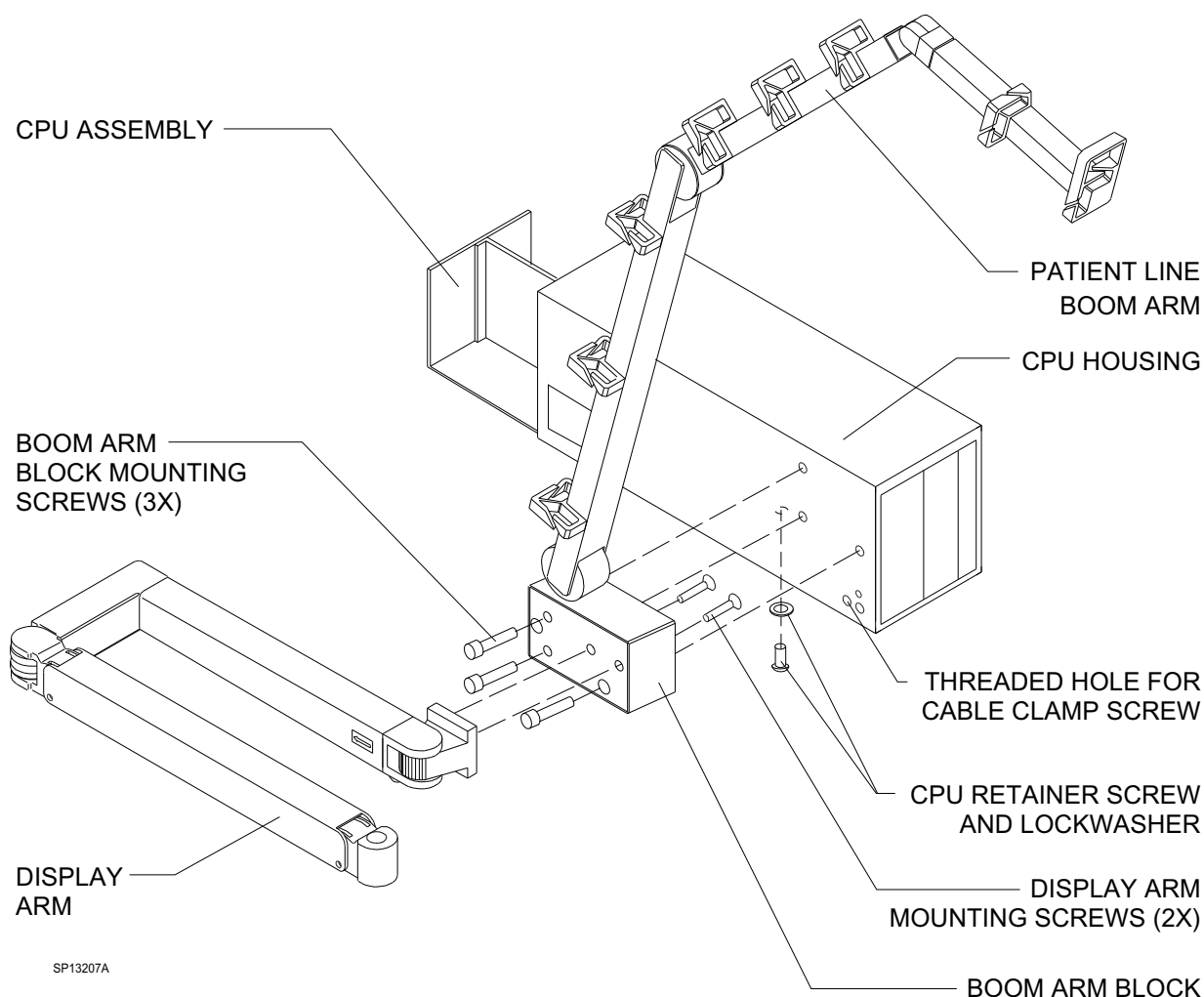

CPU ASSEMBLY
PATIENT LINE BOOM ARM
CPU HOUSING
BOOM ARM BLOCK MOUNTING SCREWS (3X)
THREADED HOLE FOR CABLE CLAMP SCREW
CPU RETAINER SCREW AND LOCKWASHER
DISPLAY ARM MOUNTING SCREWS (2X)
DISPLAY ARM
BOOM ARM BLOCK

SP13207A

Figure 7A: DISPLAY ARM INSTALLATION ON OUTBOARD ORDM WITH OPTIONAL PATIENT LINE BOOM ARM

INSTALLATION PROCEDURE (continued)

28. Remove the six screws holding the rear cover of the remote display and separate the rear cover from the remote display. Use caution when separating the cover so that cables are not pulled from the display.

29. Loosen the remote display clamp screws. See Figure 8. Remove the outer retaining ring from the remote display mounting rod, and withdraw the rod approx. 3 in. until the end of the rod clears the first clamp. Remove the inner retaining ring and fully withdraw the display mounting rod.

30. Examine the mounting rod hole in the remote display cover. If the hole does not have a notch as shown in Figure 9, carefully cut or file a ⅛ in. wide notch in the cover that will clear the stop pins on the new Datagrip display mounting rod.

31. Replace any cracked display mounting clamps (P/N 4112685-001) at this time with the extra clamps provided in the kit.

32. Reinstall the rear cover on the remote display with the screws that were previously removed. (Install the two shorter screws at the bottom.)
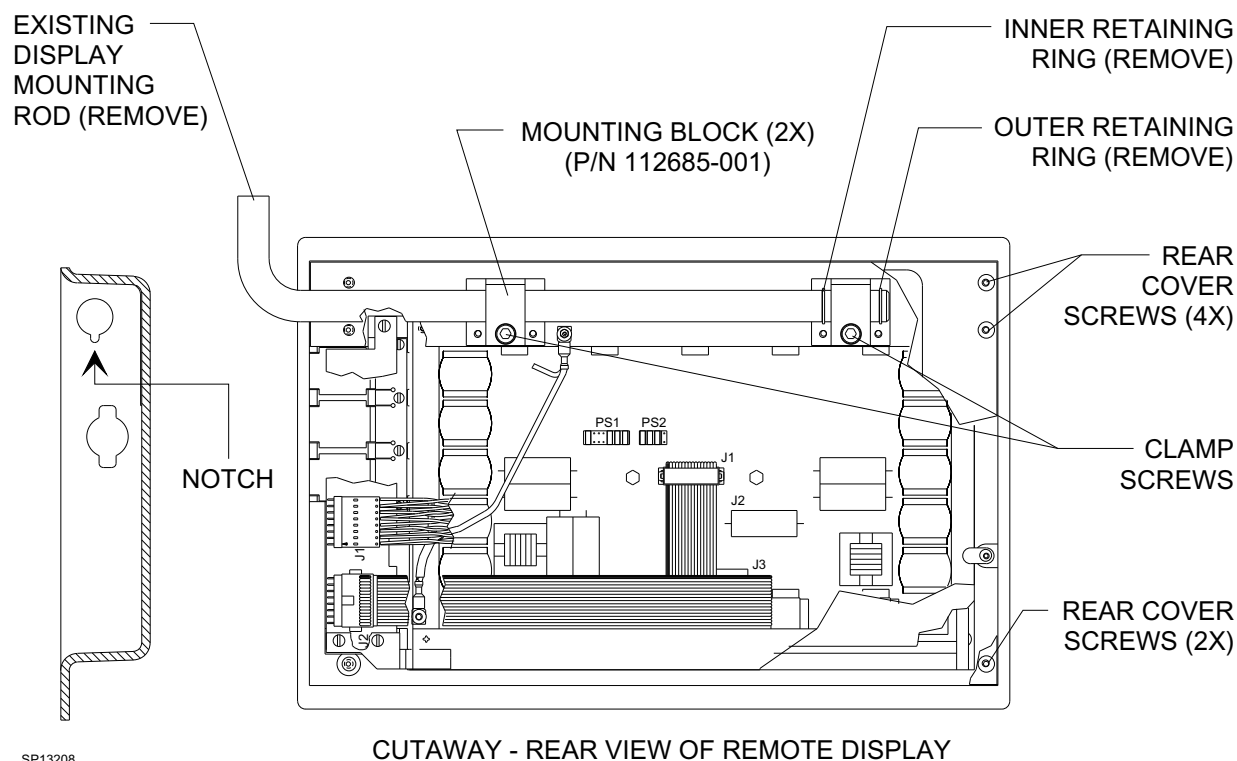
EXISTING DISPLAY MOUNTING ROD (REMOVE)

MOUNTING BLOCK (2X) (P/N 112685-001)

INNER RETAINING RING (REMOVE)

OUTER RETAINING RING (REMOVE)

REAR COVER SCREWS (4X)

NOTCH

PS1 PS2

J1

J2

J3

CLAMP SCREWS

REAR COVER SCREWS (2X)

SP13208

CUTAWAY - REAR VIEW OF REMOTE DISPLAY

Figure 8: REMOTE DISPLAY DETAILS

10

INSTALLATION PROCEDURE (continued)

33. Install the Datagrip assembly (P/N 4111907) at the outboard end of the display arm. See Figure 9. Be sure the delrin spacer is in place between the assembly and the display arm. Tighten the mounting screw to a torque of 4 foot pounds. Reinstall the plastic cap at the end of the arm.

34. Slide the remote display onto the Datagrip display mounting rod. Orient the display with its face toward the floor so that the stop pins on the rod will pass through the slots in the mounting clamps, and continue sliding the display into position.
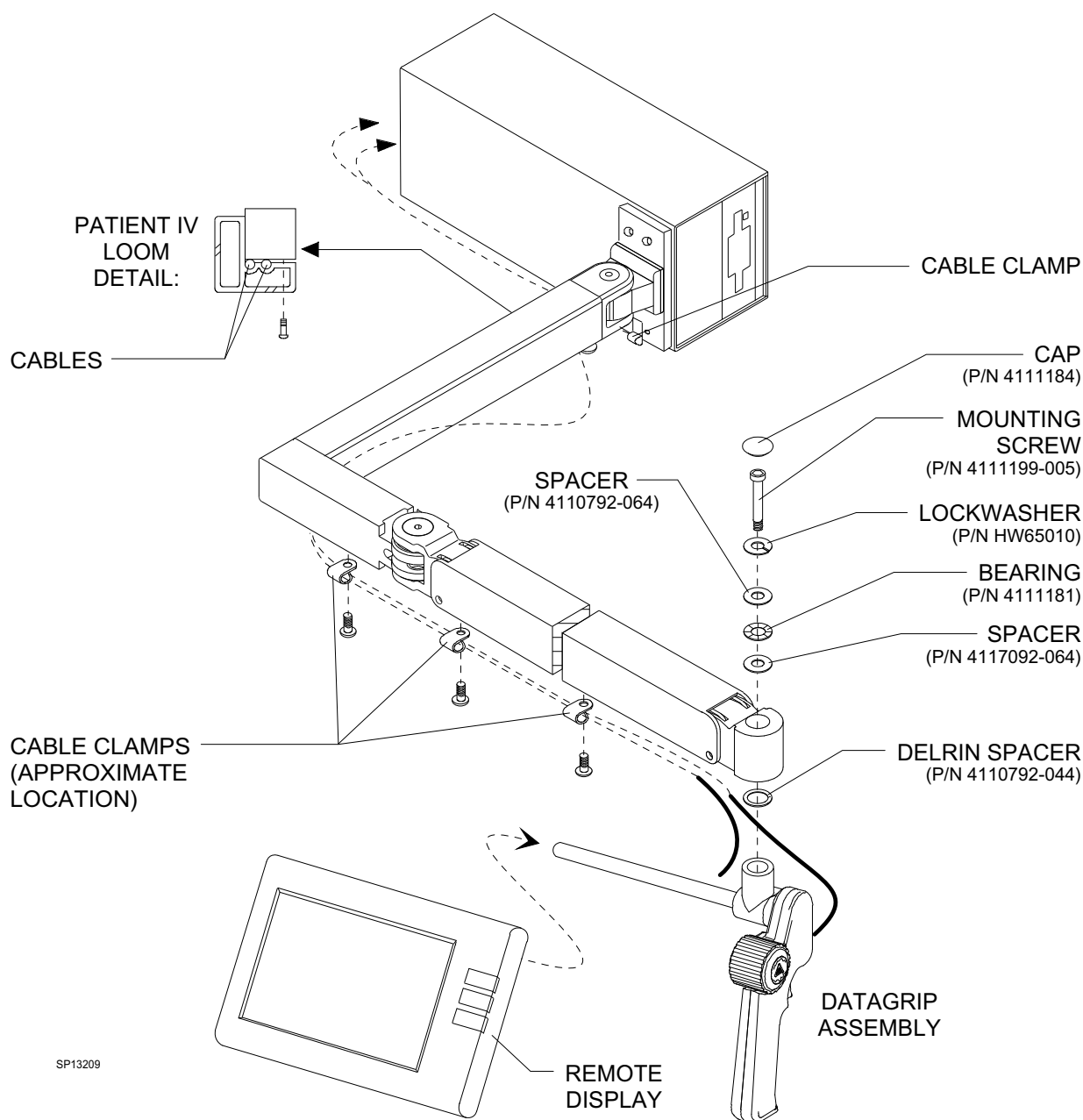
Figure 9: REMOTE DISPLAY/DATAGRIP INSTALLATION

11

INSTALLATION PROCEDURE (continued)

35.   Tighten the mounting clamps (accessible through clearance holes in the rear cover) until the remote display has the desired amount of friction on the mounting rod.

36.   Attach the Datagrip and remote display cables to the underside of the arm using three ⅜ in. plastic cable clamps and three 6-32 x ⅜ in. button head screws as shown in Figure 9. (The clamps and screws are included in the hardware kit supplied with the adjustable arm.)

Slide the cables under the patient IV line plastic looms (see detail in Figure 9) and install a 6-32 x ⅜ in. button head socket screw through each loom into the display arm.

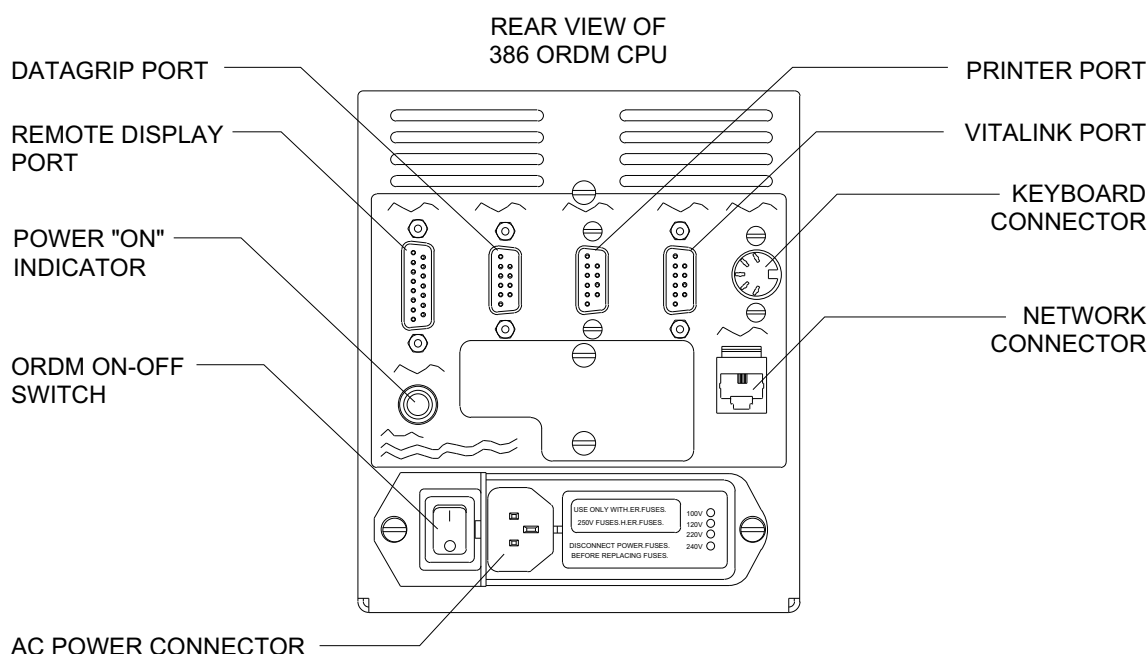37.   Attach the cables to the adapter plate using a ⅜ in. plastic cable clamp (P/N 4112300) and 6-32 x ⅜ in. button head socket screw (P/N HW09000). (Ref. Figure 7.)

For installations with a patient line boom arm, install the cable clamp screw in the threaded hole in the CPU housing ref. Figure 7A).

38.   Connect the Datagrip and remote display cables to their ports on the rear panel of the ORDM CPU panel. See Figure 10 for port location and labeling.

39.   Pull the release lever on the display arm and verify that the arm has full range of motion with no binding caused by the cables. Position the cables in their clamps as needed, and tighten the clamp screws. Coil excess cable in the bottom loops of the plastic IV looms.

40.   If the machine is equipped with a manual sphygmomanometer, screw the threaded mounting ring of the gauge onto the gauge mount.

REAR VIEW OF
386 ORDM CPU

DATAGRIP PORT

REMOTE DISPLAY
PORT

POWER "ON"
INDICATOR

ORDM ON-OFF
SWITCH

PRINTER PORT

VITALINK PORT

KEYBOARD
CONNECTOR

NETWORK
CONNECTOR

USE ONLY WITH.ER.FUSES.
250V FUSES.H.ER.FUSES.

DISCONNECT POWER.FUSES.
BEFORE REPLACING FUSES.

100V
120V
220V
240V

AC POWER CONNECTOR

SP13210

Figure 10: 386 ORDM CPU REAR PANEL CONNECTIONS

12

INSTALLATION PROCEDURE (continued)

41. Loosen the friction adjustment screw on the underside of the display arm (no more than one turn). (It may be necessary to raise or lower the arm to align the screw with the access hole.) See Figure 11.

42. Raise and release the arm, and verify that it returns to an approximately horizontal position.

    Lower and release the arm, and verify that it returns to an approximately horizontal position.

    Contact the NAD Service Department if the display arm fails to return to a near-horizontal position.
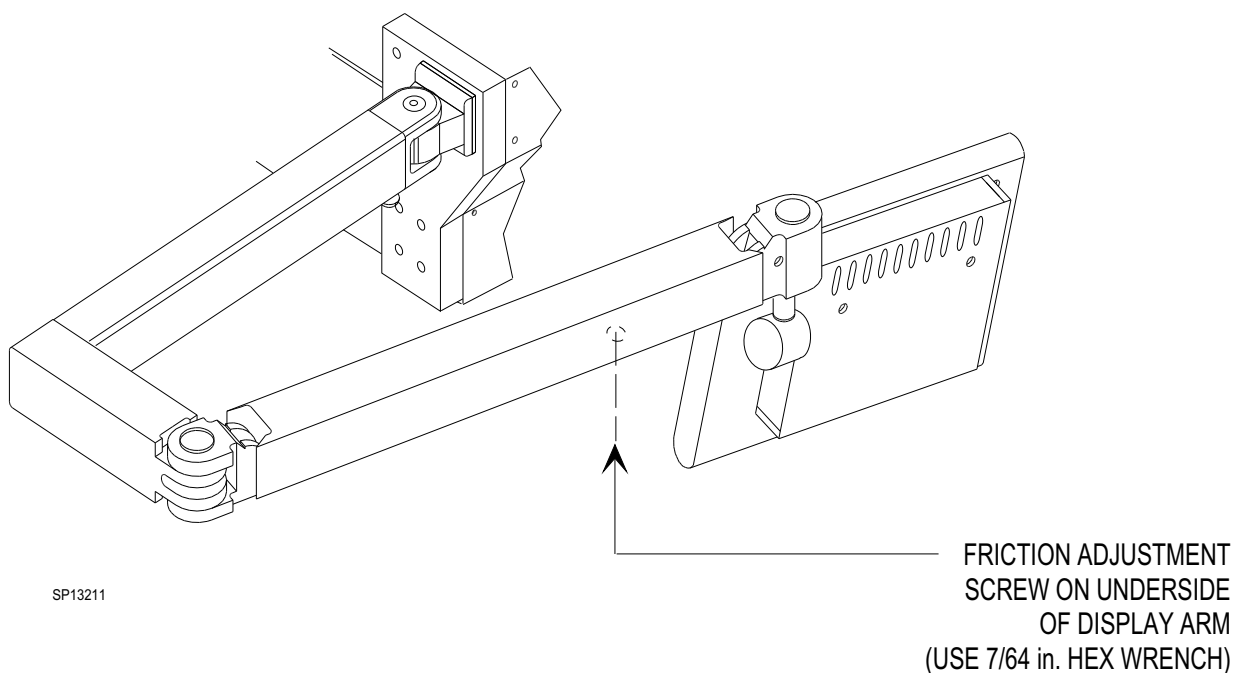
43. Slowly re-tighten the friction adjustment screw until the arm stays in position when raised or lowered. (Do not over-tighten the screw as this will cause the arm to loose tension in the raised position.)

SP13211

FRICTION ADJUSTMENT
SCREW ON UNDERSIDE
OF DISPLAY ARM
(USE 7/64 in. HEX WRENCH)

Figure 11: DISPLAY ARM ADJUSTMENT

13

INSTALLATION PROCEDURE (continued)

44.   On the rear panel of the ORDM CPU, check the voltage indicator window on the AC power connector assembly and ensure that the unit is configured for the mains voltage on which it is to operate. For 100 or 120 volt operation, the index pin should appear in the 120 V window; for 220 or 240 volt operation, the index pin should appear in the 220 V window. See Figure 12.

45.   If it is necessary to change the voltage configuration, insert a small screwdriver at the location shown in the illustration and pry out the fuse holder.

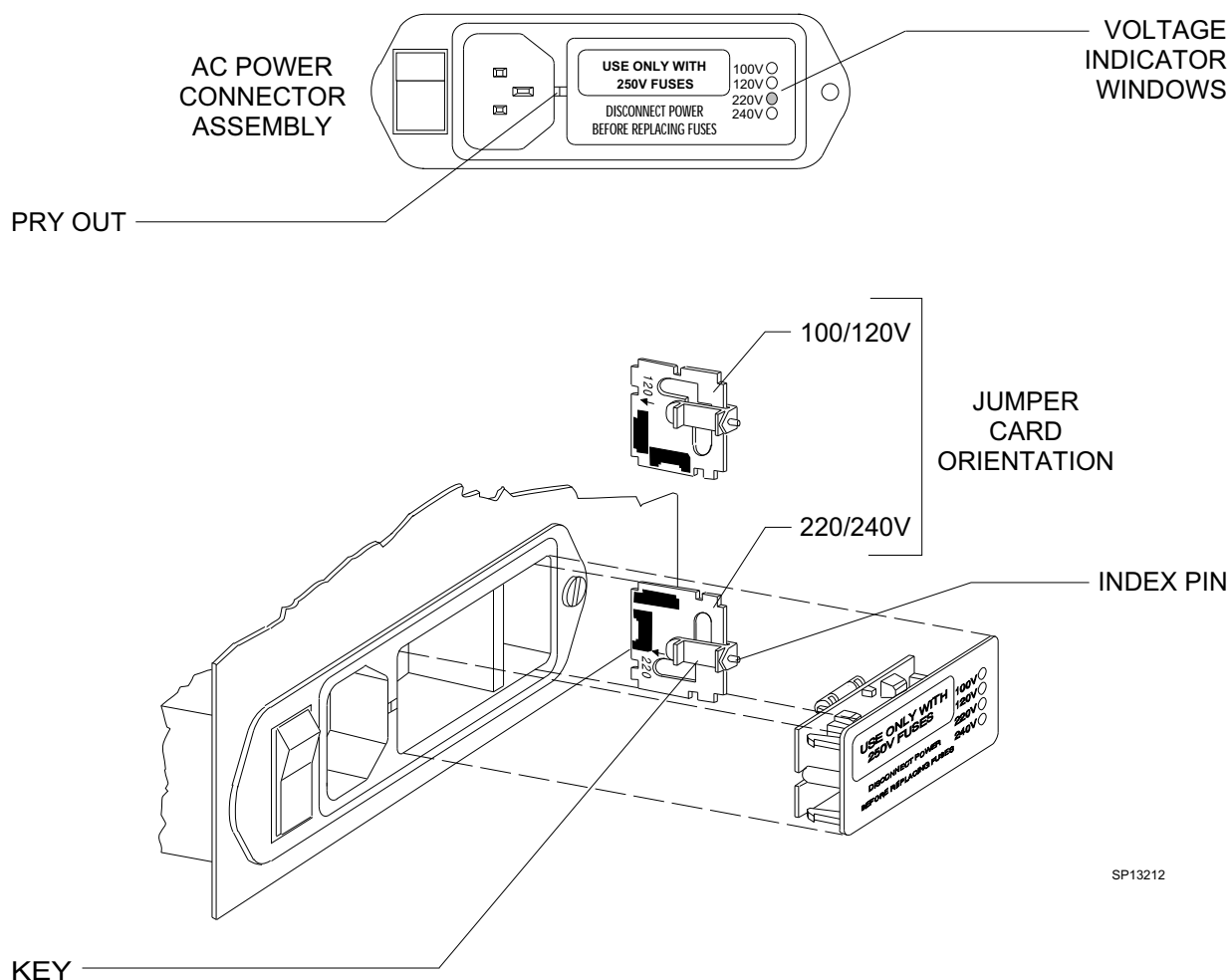46.   Remove the jumper card by grasping it with long nose pliers and pulling it straight out.

Figure 12: MAINS VOLTAGE SELECTION

14

INSTALLATION PROCEDURE (continued)

47. Rotate the jumper card so that the arrow corresponding to the desired mains voltage (120 for 110 V or 120 V operation, 220 for 220 V or 240 V operation) is pointing toward the inside of the AC power connector assembly. Orient the nylon key so that it is seated in the notch on the outside edge of the card with its index pin facing outward as shown in Figure 12.

48. Slide the jumper card into the tracks on the AC power connector assembly (ensure that the card is oriented with its markings toward the left) and press it firmly into its socket.

49. Ensure that there are two 2.5 A, 250 V fuses in the fuse holder.

50. Install the fuse holder in the AC power connector assembly. If the jumper card has been installed correctly, the index pin on the nylon key will be visible in the desired voltage indicator window.

51. Connect the keyboard, Vitalink data cable and printer cable (if applicable) to their ports on the rear of the ORDM CPU panel. Refer to Figure 10 for port location and labeling.

52. Plug the AC power cord into the rear panel of the CPU.

53. Plug the other end of the AC power cord into the closest AC convenience receptacle outlet.

54. Plug the system AC power cord into a live AC receptacle and enable all circuit breakers.

55. Turn the System Power switch to ON.

56. Set the ORDM On-Off switch (located on the rear ORDM CPU panel) to the ON position.

57. Verify that the green Power "On" indicator on the rear panel is lighted, and the self-diagnostics screen is displayed. Wait until the ORDM monitor screen is displayed before proceeding further. If the screen gets locked into the "Setting Time to Host" mode, simultaneously press the CONTROL and D keys on the keyboard. This will allow the ORDM to advance to the Monitor Screen.

15

INSTALLATION PROCEDURE (continued)

58. Pull out the keyboard and verify that the EDIT and START/STOP RECORD keycaps are installed as shown in Figure 13.

If either of these keycaps are not present, remove the keyboard cover and carefully lift off the existing keycap(s). Press the new keycap(s) into place. Clean the keyboard faceplate and install a new keyboard cover (P/N 4111314).
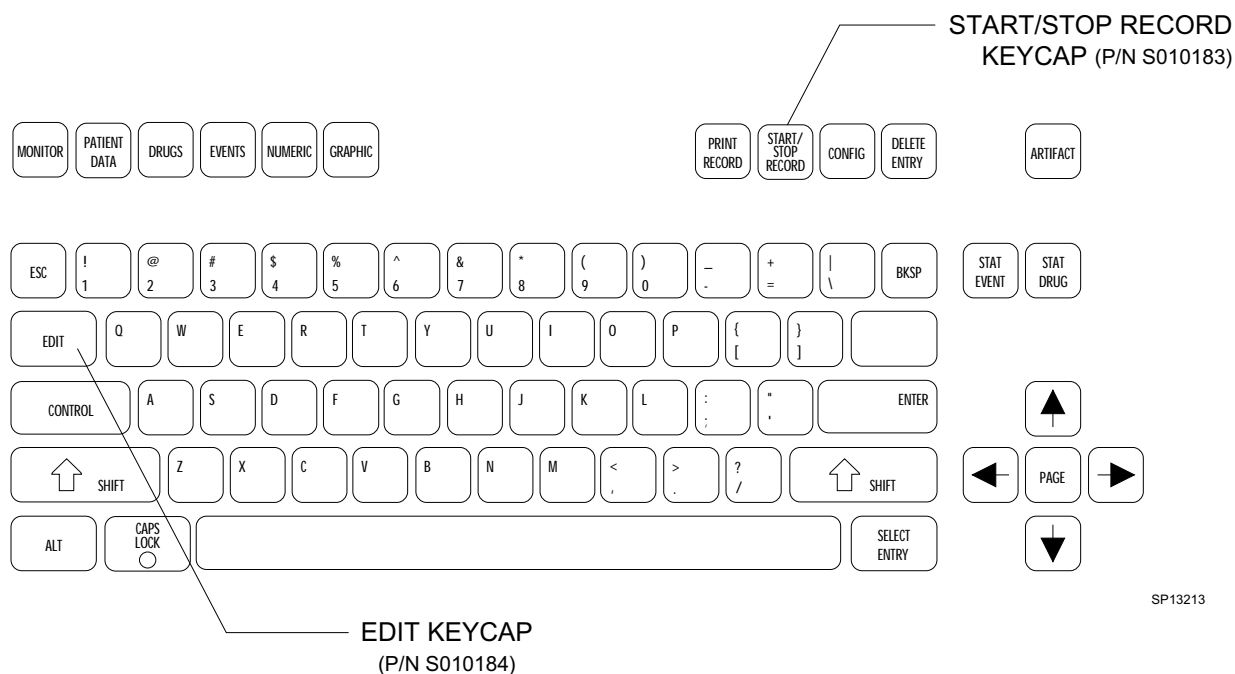

Figure 13: KEYBOARD LAYOUT WITH CORRECT KEYCAPS

16

CONFIGURING THE SERIAL I/O PORT TO A NARKOMED 3

1.A Configure the Narkomed 3 serial port connected to the O.R. Data Manager (use Port A, B, C or D) (refer to *Narkomed 3 Operator's Manual— MONITORING SYSTEM, Configure Menu*) as follows:

BAUD RATE : 9600
DATA BITS : 8
PARITY   : NONE
STOP BITS : 1
PROTOCOL : 03

2.A Press the CONFIG key on the O.R. Data Manager keyboard to enter the System Configuration screen on the remote display. You can also use the Datagrip to select CONFIG from the O.R. Data Manager screen menu.

3.A When the System Configuration screen is displayed, the cursor will appear in the first row as shown in Figure 14A. Press the S key to select Service functions, or highlight the choice and press the ENTER key or the Datagrip trigger.

```
SYSTEM CONFIGURATION



(L) Load templates
(O) configuration Options
(I) Import site lists
(T) Transfer case
(M) screen Menu
(S) Service functions



Use arrow keys or alpha keys to select option...
```
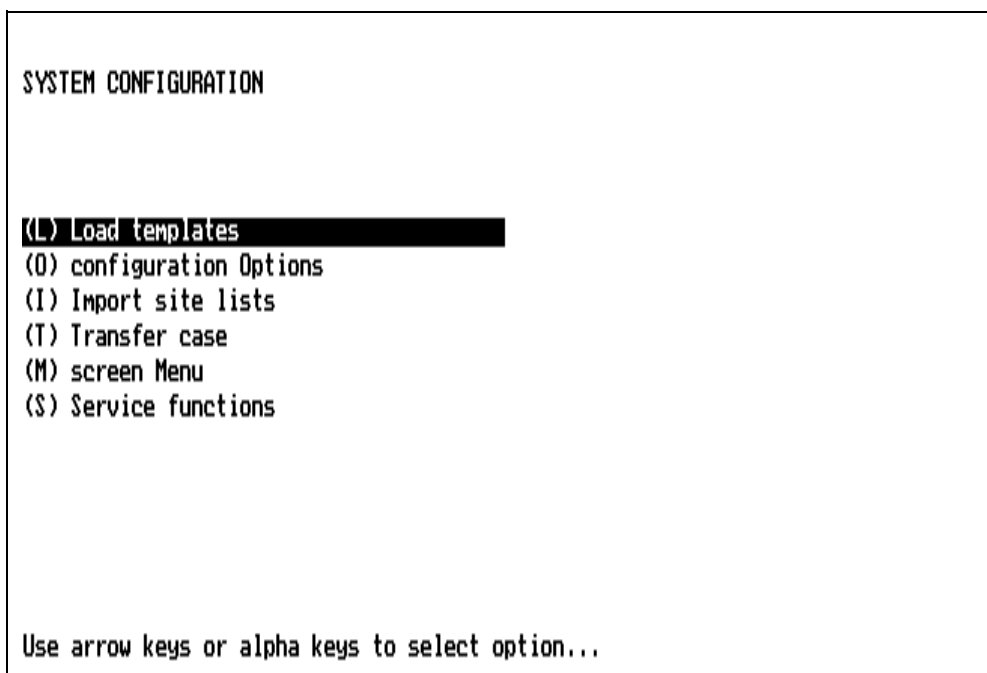
Figure 14A: SYSTEM CONFIGURATION SCREEN

17

CONFIGURING THE SERIAL I/O PORT TO A NARKOMED 3 (continued)

4.A   Since the Service Functions screen is intended for NAD service personnel only, a prompt for the service password will appear. as shown in Figure 15A.

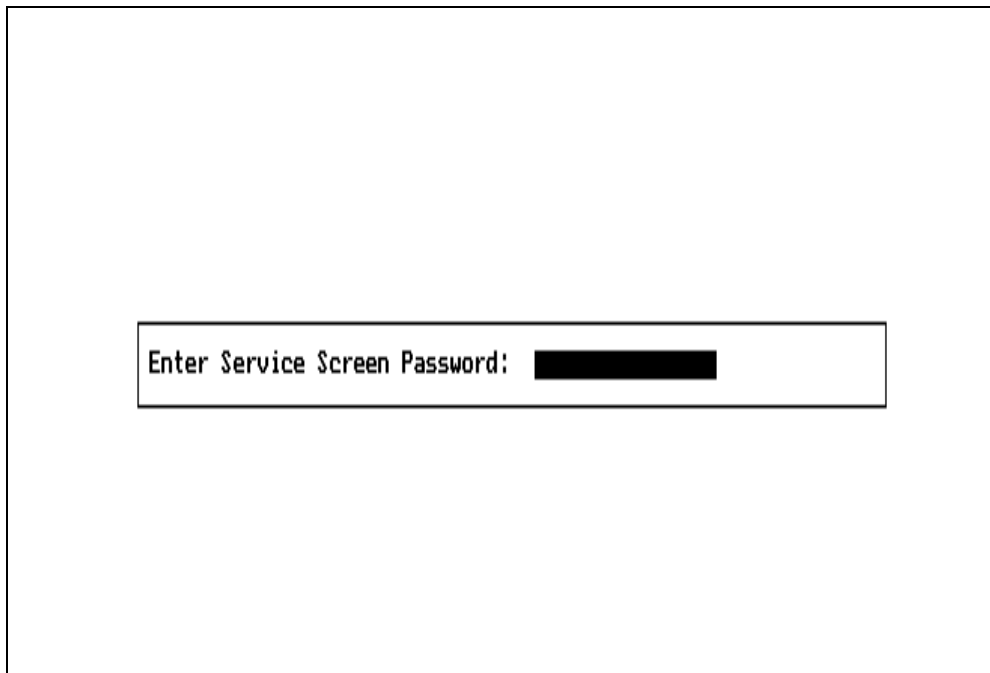Type in the password and press the ENTER key or the Datagrip trigger.

Enter Service Screen Password: ▇▇▇▇▇▇▇

Figure 15A: PASSWORD SCREEN

18

CONFIGURING THE SERIAL I/O PORT TO A NARKOMED 3 (continued)

5.A When the NAD Service Functions screen is displayed, the screen will display the current LOCAL/NETWORK configuration and the current baud rate.

To configure the O.R. Data Manager as either LOCAL (floppy disk) or NETWORK, position the cursor on the Local/Network cell and press the SELECT ENTRY key or the Datagrip trigger to bring up a menu that contains valid choices for this configuration.

6.A Select the setting by highlighting the desired choice and pressing the ENTER key or the Datagrip trigger.

```
NAD SERVICE FUNCTIONS




        Local/Network: Local      Select:

Serial Port Baud Rate: 9600       Local
                                  Network
                   MENU           ESCAPE




  Use  SELECT ENTRY  key to change value...
```
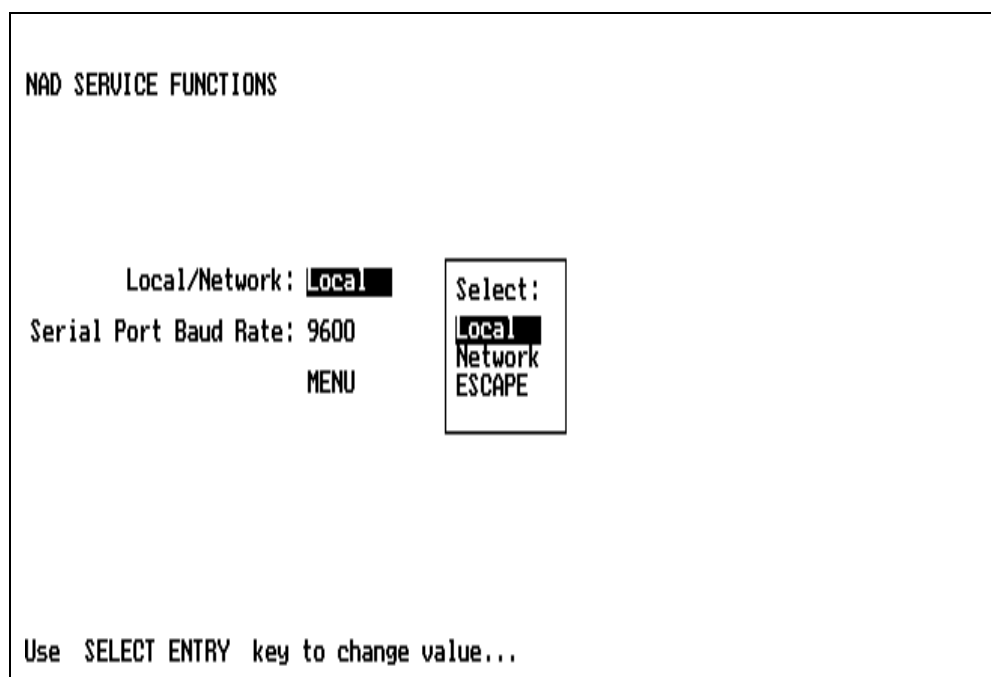
Figure 16A: SERVICE FUNCTIONS SCREEN

19

CONFIGURING THE SERIAL I/O PORT TO A NARKOMED 3 (continued)

7.A   To configure the serial baud rate, position the cursor on the Serial Port Baud Rate cell, and press the SELECT ENTRY key or the Datagrip trigger to bring up a menu that contains valid choices for the baud rate.

8.A   Set the serial port baud rate to 9600 by highlighting the choice and pressing the ENTER key or the Datagrip trigger.

9.A   Press the CONFIG key to return to the System Configuration screen.

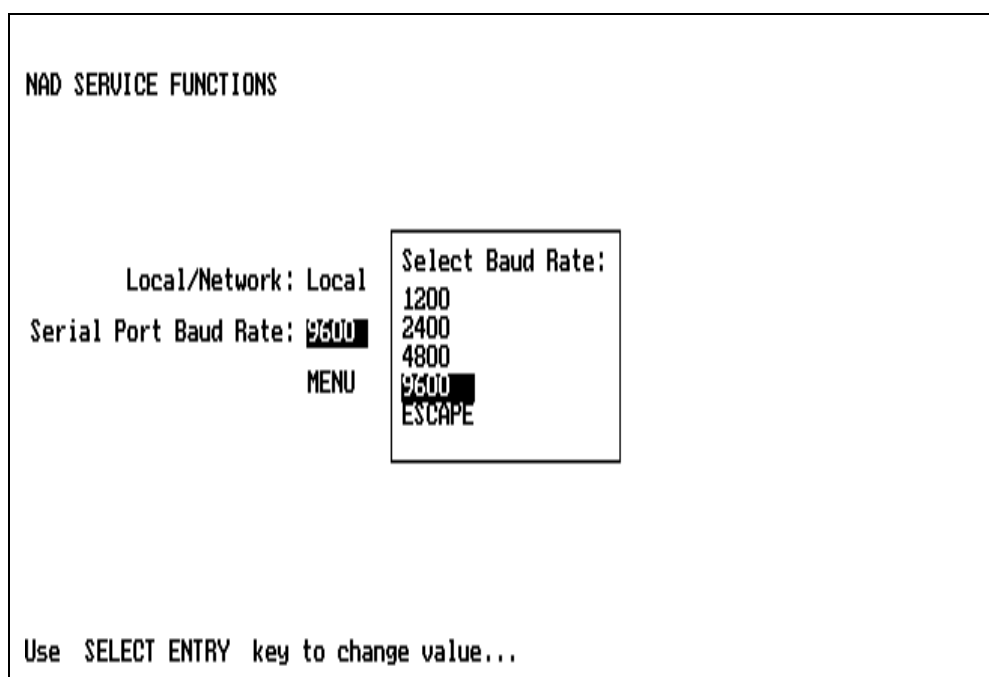10.A   Press the MONITOR key to return to the monitor screen.

```
NAD SERVICE FUNCTIONS



           Local/Network: Local      Select Baud Rate:
                                      1200
   Serial Port Baud Rate: 9600        2400
                                      4800
                    MENU              9600
                                      ESCAPE




   Use  SELECT ENTRY  key to change value...
```

Figure 17A: SERVICE FUNCTIONS SCREEN, BAUD SELECTION

CONFIGURING THE SERIAL I/O PORT TO A NARKOMED 2B

1.B   Configure the Narkomed 2B serial port connected to the O.R. Data Manager (use Port A only) (refer to *Narkomed 2B Operator's Manual— MONITORING SYSTEM, Configure Menu*) as follows:

    BAUD RATE : 1200
    DATA BITS : 8
    PARITY   : NONE
    STOP BITS : 1
    PROTOCOL : VITALINK

2.B   Press the CONFIG key on the O.R. Data Manager keyboard to enter the System Configuration screen on the remote display. You can also use the Datagrip to select CONFIG from the O.R. Data Manager screen menu.

3.B   When the System Configuration screen is displayed, the cursor will appear in the first row as shown in Figure 14B. Press the S key to select Service functions, or highlight the choice and press the ENTER key or the Datagrip trigger.
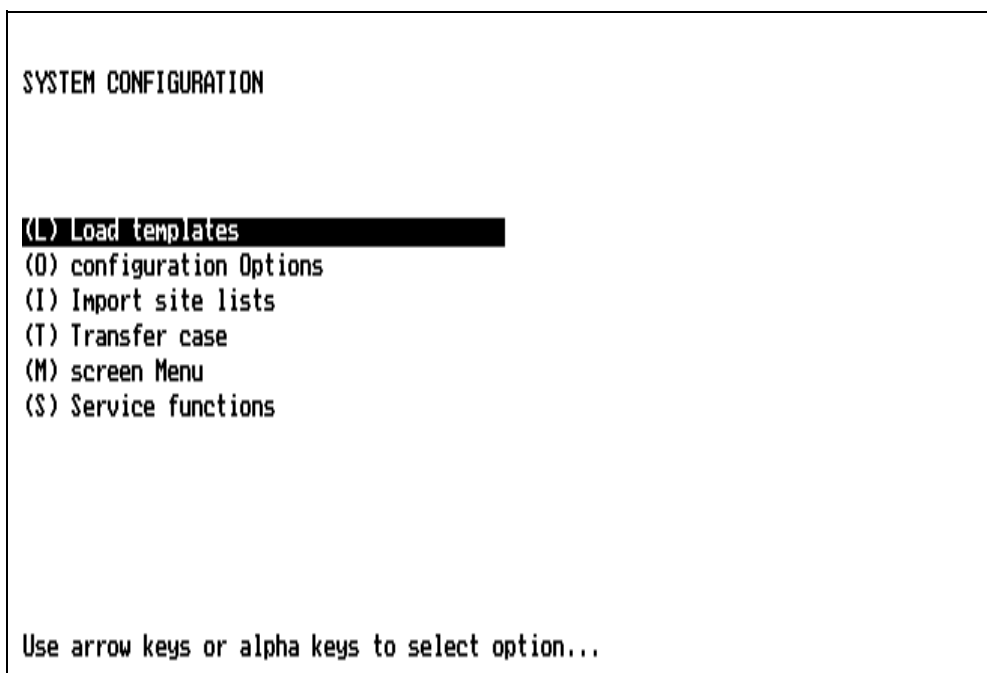
```
SYSTEM CONFIGURATION




(L) Load templates
(O) configuration Options
(I) Import site lists
(T) Transfer case
(M) screen Menu
(S) Service functions






Use arrow keys or alpha keys to select option...
```

Figure 14B: SYSTEM CONFIGURATION SCREEN

21

CONFIGURING THE SERIAL I/O PORT TO A NARKOMED 2B (continued)

4.B   Since the Service Functions screen is intended for NAD service personnel only, a prompt for the service password will appear. as shown in Figure 15B.

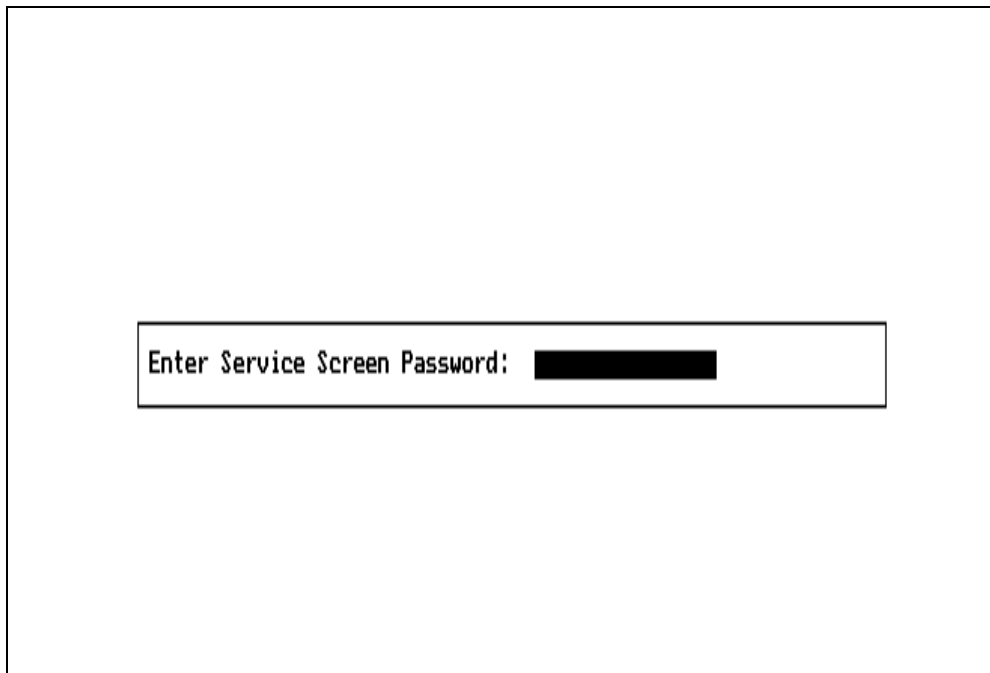Type in the password and press the ENTER key or the Datagrip trigger.

```
Enter Service Screen Password:  ████████████
```

Figure 15B: PASSWORD SCREEN

22

CONFIGURING THE SERIAL I/O PORT TO A NARKOMED 2B (continued)

5.B   When the NAD Service Functions screen is displayed, the screen will display the current LOCAL/NETWORK configuration and the current baud rate.

To configure the O.R. Data Manager as either LOCAL (floppy disk) or NETWORK, position the cursor on the Local/Network cell and press the SELECT ENTRY key or the Datagrip trigger to bring up a menu that contains valid choices for this configuration.
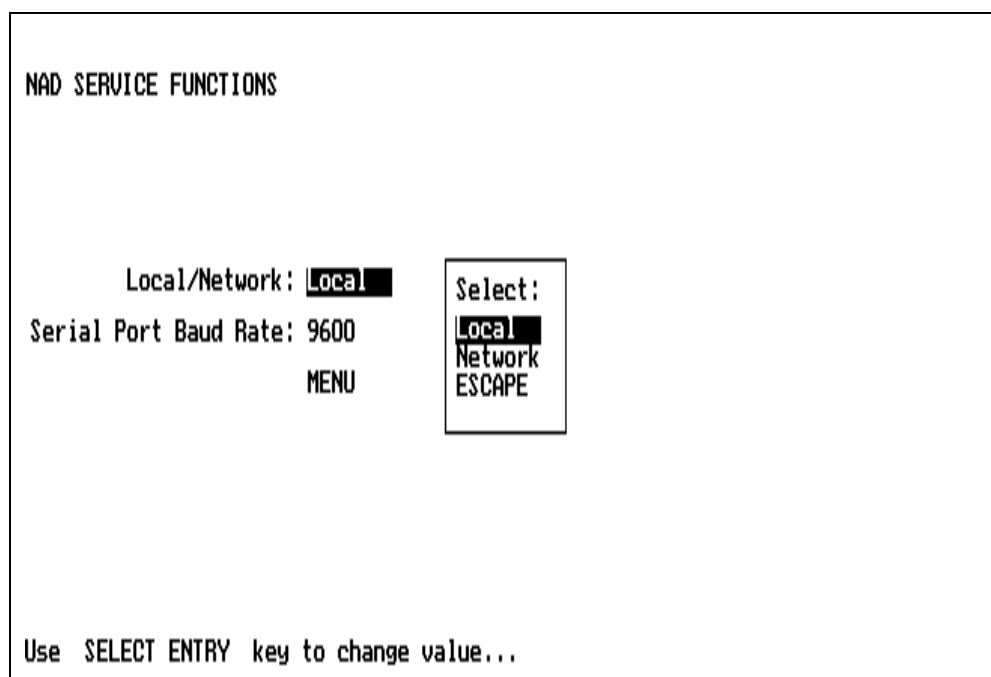
6.B   Select the setting by highlighting the desired choice and pressing the ENTER key or the Datagrip trigger.

```
NAD SERVICE FUNCTIONS




        Local/Network: ▐Local▌      Select:
 Serial Port Baud Rate: 9600       ▐Local▌
                                    Network
                        MENU        ESCAPE




  Use  SELECT ENTRY  key to change value...
```

Figure 16B: SERVICE FUNCTIONS SCREEN

CONFIGURING THE SERIAL I/O PORT TO A NARKOMED 2B (continued)

7.B   To configure the serial baud rate, position the cursor on the Serial Port Baud Rate cell, and press the SELECT ENTRY key or the Datagrip trigger to bring up a menu that contains valid choices for the baud rate.

8.B   Set the serial port baud rate to 1200 by highlighting the choice and pressing the ENTER key or the Datagrip trigger.

9.B   Press the CONFIG key to return to the System Configuration screen.

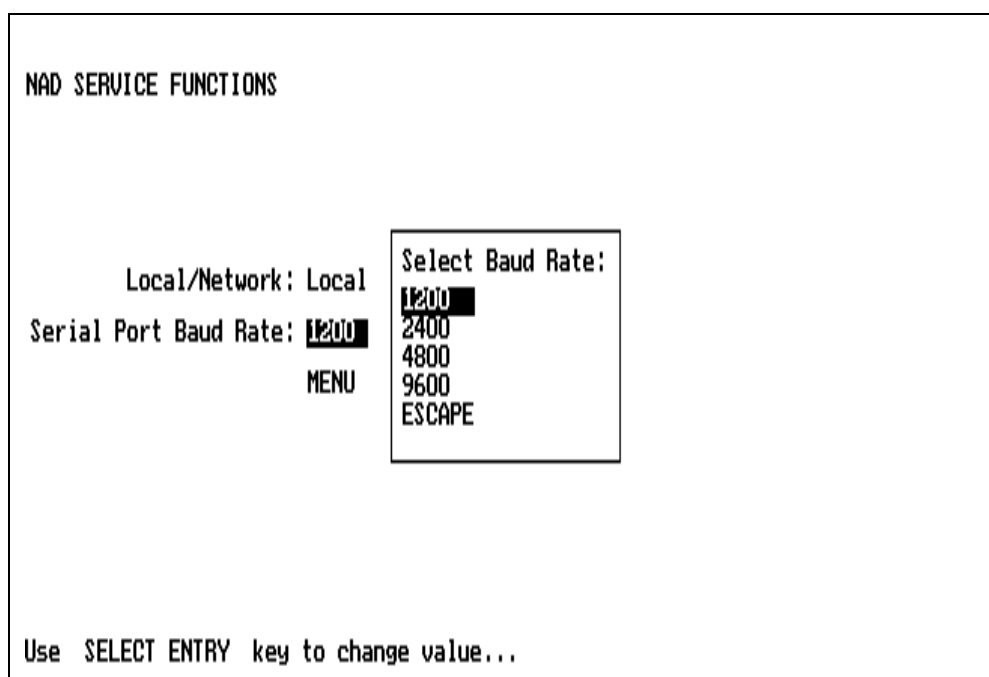10.B   Press the MONITOR key to return to the monitor screen.

```
NAD SERVICE FUNCTIONS




                                         Select Baud Rate:
         Local/Network: Local            1200
                                         2400
    Serial Port Baud Rate: 1200          4800
                           MENU          9600
                                         ESCAPE




    Use  SELECT ENTRY  key to change value...
```

Figure 17B: SERVICE FUNCTIONS SCREEN, BAUD SELECTION

24

ORDM TEST

1. On the ORDM keyboard, press and hold the ALT key, and press the V key.

   The window shown in Figure 18 will appear at the center of the remote display for approximately three seconds. The current software version number shown on the remote display should agree with that marked on the program disk or its accompanying documentation.

2. Verify the operation of the Datagrip by pulling the trigger and observing the menu screen. Use the thumbwheel to move the cursor in the menu screen.

3. Ensure that an updated copy of the ORDM Operator's Manual (P/N 4111342-006 or later) accompanies the machine.

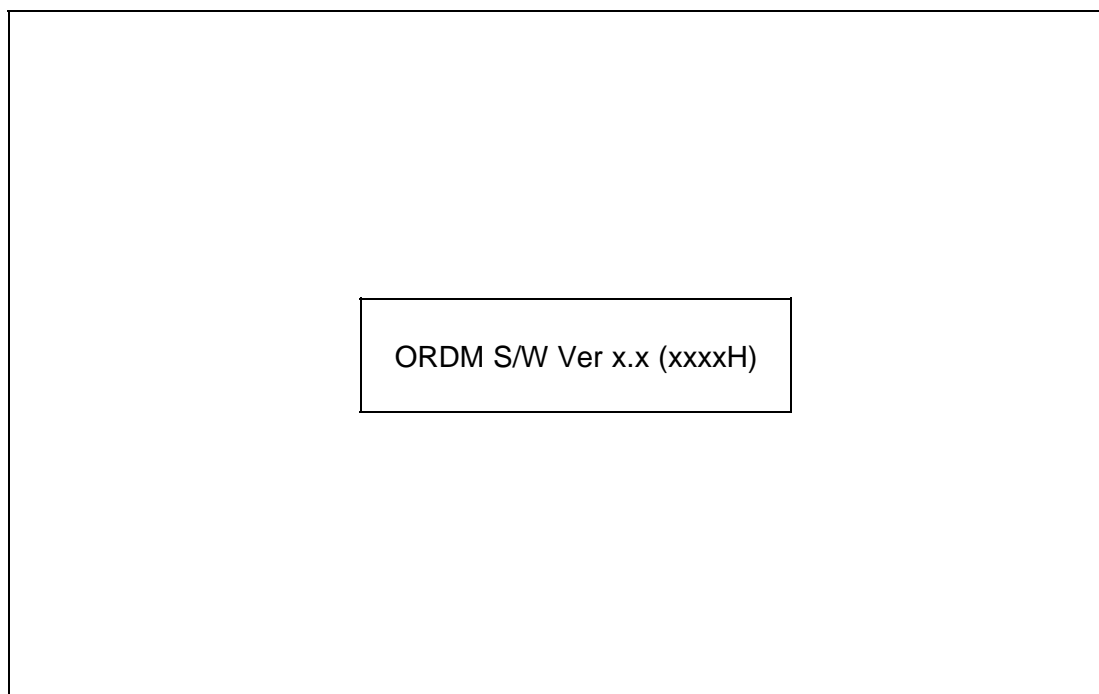4. Perform a complete PMS procedure on the machine.

ORDM S/W Ver x.x (xxxxH)

Figure 18: SOFTWARE VERSION WINDOW

NORTH
AMERICAN
DRÄGER

Quality Service for Life®

Technical Service Department
3122 Commerce Drive
Telford, PA 18969
(215) 721-5402
(800) 543-5047
(215) 723-5935 Fax

Part Number: SP00132
Rev: E
Date: February 15, 1995
© 1995 N.A.D., Inc.